

I Claim:

1. A carrier for connecting a printed circuit board card to a chassis, wherein the card has a lower edge including a system connector that defines a card-insertion direction, and a bulkhead that is oriented substantially parallel to the insertion direction defined by the card's system connector, wherein the chassis defines an opening for receiving a card, and wherein the chassis includes a system connector to be placed in communication with the system connector of the received card, the chassis' system connector and opening defining a chassis-insertion direction, comprising:

a body having a front end and a rear end;

a first system connector carried on the body and configured to mate with the card's system connector in the card-insertion direction; and

a second system connector carried on the body and configured to mate with the chassis' system connector, wherein the second system connector is in communication with the first system connector;

wherein the carrier's body and first system connector are configured such that the carrier's second system connector can be inserted into the opening in the chassis-insertion direction to mate with the chassis' system connector while the card's system connector is mated to the carrier's first system connector.

2. The carrier of claim 1, wherein the carrier's body and first system connector are configured such that the card's bulkhead would be approximately coplanar with the chassis' opening when the card's system connector is mated with the carrier's first system connector and the carrier's second system connector is mated with the chassis' system connector.

3. The carrier of claim 2, wherein the body includes integral wiring to put the carrier's second system connector in communication with the carrier's first system connector.

4. The carrier of claim 2, and further including a guide at the front end of the body, the guide being configured to guide the card movement in mating the card's system connector with the carrier's first system connector, and the guide being configured to support the card when the card's system connector is mated with the carrier's first system connector.

5. The carrier of claim 2, and further including:

a guide at the front end of the body, the guide being configured to guide the card movement in mating the card's system connector with the carrier's first system connector, and the guide being configured to support the card when the card's system connector is mated with the carrier's first system connector; and

a handle integral with the guide, the handle being configured for controlling the insertion and extraction of the carrier into and out of the chassis.

6. The carrier of claim 2, and further including a first guide at the front end of the body and a second guide at the back end of the body, the first and second guides being configured to guide the card movement in mating the card's system connector with the carrier's first system connector, the first and second guides being configured to support the card when the card's system connector is mated with the carrier's first system connector, and the second guide being adjustable to accommodate different length cards.

7. The carrier of claim 2, wherein the carrier's first system connector is configured for the card to be a PCI card.

8. A connection system for connecting a printed circuit board card to a chassis, wherein the card has a lower edge including a system connector that defines a card-insertion direction, and a bulkhead that is substantially parallel to the insertion direction defined by the card's system connector, and wherein the chassis defines an opening for receiving a card, comprising:

a chassis system connector mounted in the interior of the chassis, the chassis' system connector and opening defining a chassis-insertion direction; and

a carrier, the carrier comprising

a body having a front end and a rear end,

a first system connector carried on the body, the first system connector being configured to mate with the card's system connector in the card-insertion direction, and

a second system connector carried on the body, configured to mate with the chassis' system connector, the second system connector being in communication with the first system connector;

wherein the carrier's body and first system connector are configured such that the carrier's second system connector can be inserted into the opening in the chassis-insertion direction to mate with the chassis' system connector while the card's system connector is mated to the carrier's first system connector; and

wherein the carrier's body and first system connector are configured such that the card's bulkhead would be approximately coplanar with the chassis' opening when the card's system connector is mated with the carrier's first system connector and the carrier's second system connector is mated with the chassis' system connector.

9. The connection system of claim 8, and further comprising a guide configured to guide the carrier through the chassis' opening, and configured to guide the carrier's second system connector to mate with the chassis' system connector.

10. The connection system of claim 8, and further comprising:

a guide extending from an end within the chassis to an end at the chassis' opening, the guide being configured to guide the carrier through the chassis' opening, and configured to guide the carrier's second system connector to mate with the chassis' system connector, wherein the guide is configured as a track composed of a translucent material; and

a light source at the guide's end within the chassis, the light source being configured to illuminate the guide's end at the chassis opening, and the light source being configured to provide information on the status of the card.

11. The connection system of claim 8, and further comprising a compressive, electrically conductive material configured to contact both the card and the chassis when the carrier and card are inserted in the chassis, to create an electrical connection between the chassis and the card.

12. The connection system of claim 8, and further comprising:

a guide extending from an end within the chassis to an end at the chassis' opening, the guide being configured to guide the carrier through the chassis' opening, and configured to guide the carrier's second system connector to mate with the chassis' system connector, wherein the guide is configured as a track composed of a translucent material;

a light source at the guide's end within the chassis, the light source being configured to illuminate the guide's end at the chassis opening, and the light source being configured to provide information on the status of the card; and

a compressive, electrically conductive material configured to contact both the card and the chassis when the carrier and card are inserted in the chassis, to create an electrical connection between the chassis and the card;

wherein the carrier's first system connector is configured for the card to be a PCI card.

13. A computer system configured to be connected to a plurality of printed circuit board cards, wherein each card has a lower edge including a system connector that defines a card-insertion direction, and each card has a bulkhead that is substantially parallel to the insertion direction defined by the card's system connector, comprising:

5 a chassis defining an interior and one or more openings into the interior for receiving the plurality of cards;

a central processing unit;

a bus connecting to the central processing unit;

10 a plurality of chassis system connectors mounted in the interior of the chassis and connected to the bus, each of the plurality of chassis system connectors defining a chassis-insertion direction with one of the one or more openings;

a plurality of carriers, each carrier comprising

a body having a front end and a rear end,

a first system connector carried on the body, the first system connector being configured to mate with the card's system connector in the card-insertion direction, and

a second system connector carried on the body, configured to mate with the chassis' system connector, the second system connector being in communication with the first system connector; and

20 a plurality of guides, each guide being configured to guide at least one of the plurality of carriers through one of the one or more chassis openings, and further guide the second system connector of the guided carriers to mate with one of the chassis' system connectors;

25 wherein each carrier's body and first system connector are configured such that the carrier's second system connector can be inserted into an at least one opening in the chassis-insertion direction to mate with a chassis' system connector while one of the plurality of cards' system connectors is mated to the carrier's first system connector; and

wherein each carrier's body and first system connector are configured such that a card's bulkhead would be approximately coplanar with a chassis opening when the card's

30 system connector is mated with the carrier's first system connector and the carrier's second system connector is mated with a chassis' system connector.

14. The computer system of claim 13, and further comprising a subsystem configured to isolate logic and power signals between one of the plurality of chassis system connectors and the rest of the plurality of chassis system connectors.

15. The computer system of claim 13, wherein:

each of the plurality of guides extend from an end within the chassis to an end at one of the one or more openings of the chassis, the guide being configured as a track composed of a translucent material;

5 the computer system further comprises a light source at the each of the plurality of guide's ends within the chassis, the light source being configured to illuminate the guides' ends at the chassis opening, and the light source being configured to provide information on the status of a card received along that guide; and

10 the computer system further comprises a subsystem configured to isolate logic and power signals between one of the plurality of chassis system connectors and the rest of the plurality of chassis system connectors, and configured to activate the light sources to provide the information on the status of the card.

16. A connection system for connecting a system connector in communication with a printed circuit board card to a circuit board backplane within the interior of a chassis that defines an opening for receiving the card, comprising:

a chassis system connector configured for mounting on the backplane, the chassis system connector defining a chassis-insertion direction with the opening;

a guide being configured as a track to guide the card through the chassis opening, and further guide the system connector in communication with the card to mate with the chassis system connector, wherein the guide extends from an end adjacent to the backplane to an end at the opening of the chassis, the guide being composed of a translucent material;

a light source on the backplane at the guide's end within the chassis, the light source being configured to illuminate the guide's ends at the chassis opening, and the light source being configured to provide information on the status of the card received along the guide; and

a subsystem configured to activate the light source to provide the information on the status of the card.

17. A method of connecting a printed circuit board cards to a computer, wherein the card has a lower edge including a system connector that defines a card-insertion direction, wherein the card has a bulkhead that is substantially parallel to the insertion direction defined by the card's system connector, wherein the computer has a chassis defining an interior and an opening into the interior for receiving the card, and wherein the computer has a chassis system connector mounted in the interior of the chassis, the chassis system connector defining a chassis-insertion direction with the opening, comprising:

5 mating the card's system connector with a system connector on a carrier, wherein the carrier includes:

10 a body having a front end and a rear end,

a first system connector carried on the body, the first system connector being configured to mate with the card's system connector in the card-insertion direction, and

15 a second system connector carried on the body, configured to mate with the chassis' system connector, the second system connector being in communication with the first system connector;

guiding the carrier through the chassis opening in the chassis-insertion direction;

and

mating the carrier's second system connector with the chassis' system connector;

20 wherein the carrier's body and first system connector are configured such that the card's bulkhead is approximately coplanar with the chassis opening after the card's system connector is mated with the carrier's first system connector and after the carrier's second system connector is mated with a chassis' system connector.

18. The method of claim 17, wherein the step of guiding comprises guiding the carrier with a guide configured to guide the carrier through the chassis opening, and configured to guide the second system connector of the carrier to mate with the chassis' system connector.



19. The method of claim 17, and further comprising isolating logic and power signals to the chassis' system connector prior to mating the carrier's second system connector with the chassis' system connector.

20. A connection system for connecting a printed circuit board card to a chassis, wherein the card has a lower edge including a system connector that defines a card-insertion direction, and a bulkhead that is substantially parallel to the insertion direction defined by the card's system connector, and wherein the chassis defines an opening for receiving a card, comprising:

a chassis system connector mounted in the interior of the chassis, the chassis' system connector and opening defining a chassis-insertion direction; and

a means for placing the card's system connector in communication with the chassis' system connector, wherein the card's bulkhead is positioned to be approximately coplanar with the chassis opening when the card's system connector in communication with the chassis' system connector;

wherein the chassis system connector is not substantially parallel to the card's system connector.